Check List the journal of biodiversity data

LISTS OF SPECIES

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Checklist of cnidarians from Pakistani waters

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Abstract: We present a species list of the marine cnidarians recorded from the Pakistani waters, northern Arabian Sea. It comprises a total of 119 species distributed in 41 families, 14 orders and 4 classes. With 44 species, the order Scleractinia (class Anthozoa) is the best-represented cnidarian taxon. Cnidarians from Pakistan are a poorly studied group which is mentioned in few occasional papers; no new species have been described from the region. The present paper will provide baseline information for future studies in Pakistan.

Key words: Anthozoa, Cubozoa, Hydrozoa, Scyphozoa, northern Arabian Sea

INTRODUCTION

Members of the phylum Cnidaria comprise a diverse group of invertebrates which all have a common and unique feature, the presence of cnidae (Marques and Collins 2004). The number of species listed for the phylum varies among different authors, Zhang (2011), for example, gives 10,105 species. Cnidarians are an important taxonomic group of study; they can be found in all habitats from the intertidal to the deep-sea and from the tropics to the poles. In many habitats they even dominate the benthic communities. Many species are ecologically important predators or prey, others are known for their capacity of hurting humans, some produce important economic losses, others are target species for bioprospecting. As basic metazoans, cnidarians are important for understanding evolutionary patterns.

The marine invertebrate fauna from the coast of Pakistan is poorly known (Kazmi and Naushaba 2013) and even less is known on cnidarian biodiversity with only a few papers published about the group (Table 1). Here we have made an attempt to present an updated checklist of cnidarians from Pakistani waters, northern Arabian Sea.

MATERIALS AND METHODS

The species list was compiled through an extensive literature search. The marine cnidarians listed here were based upon published records from the coast of Pakistan and its off coastal waters of the northern Arabian Sea; the first record come from 1937. The status of all listed species was confirmed using established databases (AIMS Coral Fact Sheets, Schuchert 2014, WoRMS). The classification used here followed Daly et al. (2007). The collection points mentioned in the literature were shown by numbers (1–68, 71-85) in Figure 1, and mentioned along with the localities in Table 1. Collection points 28–66 represent GPS positions of Siphonophorae (Ali-Khan & Shehnaz 2001b: 28, table 1). Abbreviations are NSS (Northern Sheltered Side), RS (Roadrigues Shoals), and TFR (Triple Fin Rocks). For some species, no specific locality or GPS position along Karachi coast of Pakistan mentioned (Haque 1977; Stiasny 1937); this is indicated in the table by a question mark. Locality, Pasha Bundar (Moazzam and Moazzam 2006), could not be identified and was therefore not shown in the map.

Because there were no voucher specimens, it was not possible to check if the identifications are correct. However, a few doubtful records were pointed out and were mentioned in the table by using a question mark in front of the author citation in the references column. The occurrence in the Indian Ocean of most of the hydroids listed here were confirmed by Mammen (1963, 1965a, 1965b); the siphonophores by Rengarajan (1973, 1974, 1975, 1983) and Daniel (1985).

RESULTS

Table 1 provides the compiled data on the cnidarian species recorded from Pakistani coast and its off coastal waters. The numbers of species per higher taxa reported for Pakistan are: 62 Anthozoa (4 Actiniaria, 1 Antipatharia, 1 Ceriantharia, 11 Octocorallia, 44 Scleractinia, 1

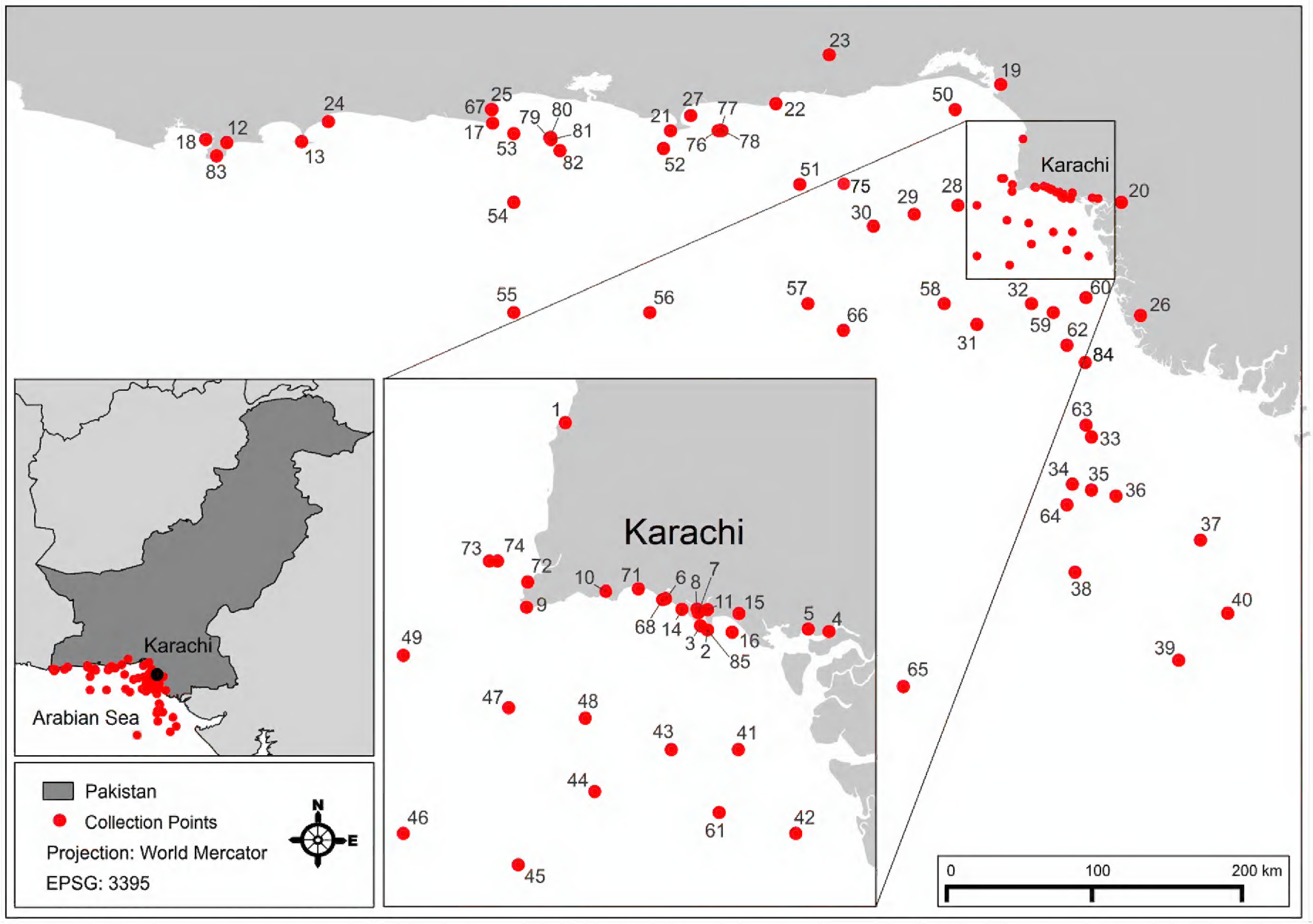

Figure 1. Map showing collection points (red dots, 1–68, 71–85) along the coast of Pakistan and its off coastal waters, the northern Arabian Sea. Coastline of Pakistan comprises of Sindh and Baluchistan provinces. From point 4 (right) to point 9 and 72 (left) is the coastal area of Karachi city at Sindh.

Zoantharia), 2 Cubozoa (1 Carybdeida, 1 Chirodropida), 46 Hydrozoa (5 Anthoathecata, 11 Leptothecata, 30 Siphonophorae), and 9 Scyphozoa (7 Rhizostomeae, 2 Semaeostomeae).

DISCUSSION

Cnidarian research along the coast of Pakistan has received little attention, which is reflected by the few papers published on the topic (Table 1). The John Murray Expedition in 1933–34 travelled through most of the western part of the Indian Ocean (Sewell 1935; Morcos 2004) and only just two records (*Pelagia noctiluca, Cephea* sp.) came from Pakistani waters, off Karachi. The next paper dealing with cnidarians (hydrozoans, octocorals and anemones) from the Pakistani coast appeared is that of Haque (1977). Since then a few other papers appeared on different cnidarian groups: siphonophores (Ali-Khan and Shehnaz 2001a, 2001b); hydroids (Moazzam and Moazzam 2006; Gul and Gravili 2014); cubo- and scyphomedusae (Tahera and Kazmi 2006; Kazmi and Sultana 2008; Muhammed and Sultana 2008; Gul and Morandini 2013; Gul et al. 2014); corals (Siddiqui et al. 2011; Ali et al. 2014); zoanthids (Gul 2013); and hydromedusae (Gul and Gravili 2013). All of them, however, only contain new records and no new species. The occurrence of corals along Pakistani coast just was pointed out relatively recently (Kazmi and Kazmi 1998; Ishaq et al. 2003; Wilkinson 2004); but Siddiqui et al. (2011) were the first to give species names. A recent paper on the subject (Ali et al. 2014) mentioned that the distribution and growth of corals is poor in Pakistan.

The reason why cnidarians are so little known in Pakistani waters is probably related to the absence of specialists in the area. The decline of taxonomists is a phenomenon that can be observed worldwide (Disney 1998; Godfray 2002). In addition, identification especially of the soft-bodied hexacorals (Häussermann 2004) and of octocorals needs years of experience and is done by fewer and fewer scientists. We propose to promote the formation of taxonomic specialists who go in the field to collect cnidarians and later identify them, and to increase funding for this type of baseline research to improve the knowledge about the phylum Cnidaria in Pakistan. The species list compiled for the present paper is supposed to be the pillars of further research on cnidarians in the region.

Remarks on recorded species

The various species of hydrozoans, octocorals and anemones reported by Haque (1977) are briefly described and without figures. Voucher specimens are not available, and thus, confirmation of identifications and further comments are complicated.

Some species are certainly misidentified (see below), but we have no access to specimens for detailed inspections and observations. The tube anemone, *Cerianthus*

membranaceus, is indeed not an Indian Ocean species but restricted to the Mediterranean Sea (S.N. Stampar, personal communication); *Plumularia insignis* is also not an Indian Ocean species (T.P. Miranda, personal communication; see also Genzano 1995: 6; Vervoort and Watson 2003: 396); they were mentioned by Haque (1977) and here considered because of these previous records. The same is true for the cubozoan jellyfish *Carybdea marsupialis* recorded from Pakistan (Kazmi and Sultana 2008); however, the figures provided in the paper suggest erroneous identification. This species is in fact restricted to Mediterranean Sea (I. Straehler-Pohl, personal communication). Similarly, Gul and Morandini (2015) argued that the *Rhizostoma pulmo* record (Muhammed and Sultana 2008) is also based upon erroneous identification; there is no access to the specimens, but the figures indicate that the specimens actually belong to a different genus.

Although the order Scleractinia appeared in the list as the best-represented taxon, many are either doubtful or not fully identified. The same is true for the alcyonacean species. We conclude that the taxonomic study of Pakistani soft and hard corals needs a detailed approach and attention.

For several of the described taxa we would have expected a much larger diversity; more specific sampling techniques and detailed observations will certainly provide more records in the future.

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Table 1. Checklist of cnidarians from Pakistan and off its coastal waters. Numbers after each collection point correspond to the numbers in Figure 1 showing the precise site of collection of the species. For abbreviations see text. Question marks in front of reference means that we consider the record doubtful probably misidentified and, those in front of the locations (Karachi, off Karachi) mean no specific locality or GPS position not mentioned.

Species	Collection points	References
Class Anthozoa Ehrenberg, 1831		
Subclass Hexacorallia Haeckel, 1866		
Order Actiniara Hertwig, 1882		
Family Haliactiidae Carlgren, 1949		
Phytocoetes gangeticus Annandale, 1915	Manora[2]	Haque 1977
Family Haloclavidae Verrill, 1899		
Metapeachia tropica (Panikkar, 1938)	Korangi Creek[4], Bhit Island[7], Baba Island[8]	Haque 1977
Family Actiniidae Rafinesque, 1815		
Anemonia indica Parulekar, 1968 (= *Anemonia indicus*)	Cape Monze[9], Buleji[10]	Haque 1977
Family Sagartiidae Gosse, 1858		
Actinothoe modesta (Verrill, 1866) (= *Sagartia modesta*)	Baba Island[8]	Haque 1977
Order Antipatharia		
Family Antipathidae		
Antipathes sp.	Ormara RS-3[78]	Ali et al. 2014
Order Ceriantharia Perrier, 1883		
Family Cerianthidae Milne-Edwards & Haime, 1852		
Cerianthus membranaceus (Spallanzani, 1784)	Korangi Creek[4], Bhit Island[7], Baba Island[8]	? Haque 1977
Order Scleractinia Bourne, 1900		
Family Acroporidae Verrill, 1902		
Acropora sp.	Ras Gunz[12]	Siddiqui et al. 2011
Astreopora sp.	Ras Gunz[12]	Siddiqui et al. 2011

Continued

Table 1. *Continued.*

Species	Collection points	References
Montipora mollis Bernard, 1897	Astola Island NSS-1[79], Astola Island NSS 2-4[80], Astola Island off S[82]	Ali et al. 2014
Family Agariciidae		
Pavona explanulata (Lamarck, 1816)	Ormara RS-3[78]	Ali et al. 2014
Family Dendrophylliidae		
?*Dendrophyllia robusta* (Bourne, 1905)	Charna Island N[73], Ormara RS-3[78]	Ali et al. 2014
Turbinaria sp.	Astola Island NSS 2-4[80]	Ali et al. 2014
Family Faviidae Gregory, 1900		
Cladocora cf. *caespitosa* (Linnaeus, 1767)	Ras Gunz[12]	Siddiqui et al. 2011
Cyphastrea serailia (Forskål, 1775)	Ras Gunz[12]	Siddiqui et al. 2011
Favia lizardensis Veron, Pichon & Wijsman-Best, 1977	Ras Gunz[12]	Siddiqui et al. 2011
Favia truncatus? Veron, 2000	Ras Gunz[12]	Siddiqui et al. 2011
Favia sp. 1	Ras Gunz[12]	Siddiqui et al. 2011
Favia sp. 2	Ras Gunz[12]	Siddiqui et al. 2011
Favia sp. 3	Ras Gunz[12]	Siddiqui et al. 2011
Favia sp. 4	Ras Gunz[12]	Siddiqui et al. 2011
Favites cf. *acuticollis* (Ortmann, 1889)	Ras Gunz[12]	Siddiqui et al. 2011
Favites sp.	Ras Gunz[12]	Siddiqui et al. 2011
Favites complanata (Ehrenberg, 1834)	Ormara RS-1[76], Ormara RS-2[77], Ormara RS-3[78], Astola Island NSS-1[79], Astola Island NSS 2-4[80], Astola Island TFR[81]	Ali et al. 2014
Favites pentagona (Esper, 1795)	Mubarak village[72], Churna Island N[73], Astola Island NSS-1[79], Astola Island NSS 2-4[80], Astola Island TFR[81]	Ali et al. 2014
Favites spinosa (Klunzinger, 1879)	Astola Island NSS-1[79]	Ali et al. 2014
Goniastrea cf. *retiformis* (Lamarck, 1816)	Ras Gunz[12]	Siddiqui et al. 2011
Leptastrea cf. *bottae* (Milne Edwards & Haime, 1849)	Sandspit[68], Charna Island N[73]	Ali et al. 2014
?*Leptastrea pruinosa* Crossland, 1952	Astola Island NSS-1[79], Astola Island NSS 2-4[80]	Ali et al. 2014
Platygyra daedalea (Ellis & Solander, 1786)	Ras Gunz[12]	Siddiqui et al. 2011
Plesiastrea versipora (Lamarck, 1816)	Astola Island NSS-1[79], Astola Island NSS 2-4[80]	Ali et al. 2014
Family Mussidae		
Acanthastrea hillae Wells, 1955	Ormara RS-2[77], Astola Island NSS 2-4[80], Astola Island off S[82]	Ali et al. 2014
Acanthastrea maxima Sheppard & Salm, 1988	Astola Island NSS 2-4[80]	Ali et al. 2014
Family Pocilloporidae		
Pocillopora damicornis (Linnaeus, 1758)	Astola Island NSS 2-4[80]	Ali et al. 2014
Family Poritidae		
Alveopora sp.	Mubarak village[72], Charna Island N[73], Charna Island NW[74]	Ali et al. 2014
?*Goniopora albicons* Veron, 2000	Charna Island N[73], Ormara RS 2[77]	Ali et al. 2014
Goniopora columna Dana, 1846	Charna Island NW[74]	Ali et al. 2014
Goniopora djiboutiensis Vaughan, 1907	Astola Island NSS-1[79], Astola Island NSS 2-4[80]	Ali et al. 2014
Goniopora cf. *savignyi* (Dana, 1846)	Ormara RS 1[76], Astola Island NSS 2-4[80], Astola Island off S[82]	Ali et al. 2014
Goniopora somaliensis Vaughan, 1907	Astola Island NSS 1[79], Astola Island NSS 2-4[80]	Ali et al. 2014
Porites harrisoni Veron, 2000	Astola Island NSS-1[79], Astola Island NSS 2-4[80]	Ali et al. 2014
Porites lutea Quoy & Gaimard, 1833	Astola Island NSS-1[79], Astola Island NSS 2-4[80], Astola Island TFR[81]	Ali et al. 2014
Porites lobata Dana, 1846	Astola Island NSS-1[79], Astola Island NSS 2-4[80], Astola Island TFR[81]	Ali et al. 2014
Porites monticulosa Dana, 1846	Astola Island NSS 2-4[80]	Ali et al. 2014
Porites nodifera Klunzinger, 1879	Astola Island NSS-1[79], Astola Island NSS 2-4[80]	Ali et al. 2014
Porites solida (Forskål, 1775)	Astola Island NSS-1[79], Astola Island NSS 2-4[80]	Ali et al. 2014
Family Siderastreidae		
Coscinaraea monile Forskål, 1775	Charna Island N[73], Ormara RS 1[76], Astola Island NSS-1[79], Astola Island NSS 2-4[80]	Ali et al. 2014
Coscinaraea sp.	Astola Island NSS 2-4[80]	Ali et al. 2014
Psammocora contigua (Esper, 1794) (= *Psammocora obtusangula*)	Astola Island NSS 2-4[80]	Ali et al. 2014
Psammocora superficialis Gardiner, 1898	Charna Island N[73]	Ali et al. 2014
Psammocora sp.	Sandspit[68], Charna Island N[73]	Ali et al. 2014
Order Zoantharia Gray, 1832		
Zoanthus sansibaricus Carlgren, 1900	Manora[2]	Gul 2013

Continued

Table 1. *Continued.*

Species	Collection points	References
Subclass Octocorallia Haeckel, 1866		
Order Alcyonacea		
Family Melithaeidae		
? *Clathraria* sp.	Astola Island TFR[81], Jiwani[83]	Ali et al. 2014
Family Plexauridae		
? *Bebryce* sp.	Ormara RS-1[76], Ormara RS-2[77], Ormara RS-3[78], Astola Island TFR[81], Jiwani[83]	Ali et al. 2014
Echinogorgia sp.	Sandspit[68], Ormara RS-1[76], Ormara RS-2[77], Ormara RS-3[78], Astola Island TFR[81], Jiwani[83]	Ali et al. 2014
? *Echinogorgia* sp.	Sandspit[68], Ormara RS-1[76], Ormara RS-3[78]	Ali et al. 2014
Menella sp.	Goth Abdul Rehman[71], Ormara RS-1[76], Ormara RS-2[77], Ormara RS-3[78], Jiwani[83]	Ali et al. 2014
Paraplexaura sp.	Goth Abdul Rehman[71], Ormara RS-3[78], Astola Island off S[82], Jiwani[83]	Ali et al. 2014
Family Subergorgiidae		
Annella sp.	Sandspit[68], Goth Abdul Rehman[71], Ormara RS-3[78], Jiwani[83]	Ali et al. 2014
? *Subergorgia* sp.	Jiwani[83]	Ali et al. 2014
Order Pennatulacea Verrill, 1865		
Family Renillidae Gray, 1870		
Renilla reniformis (Pallas, 1766)	Korangi Creek[4] , Keamari[11]	Haque 1977
Family Veretillidae Herklots, 1858		
Cavernularia obesa Valenciennes in Milne Edwards & Haime, 1850	? Karachi	Haque 1977
Family Virgulariidae Verrill, 1868		
Scytalium tentaculatum Kölliker, 1880	Korangi Creek[4], Baba Island[8], Keamari[11], Gwadar[13]	Haque 1977
Class Cubozoa Werner, 1973		
Order Carybdeida Gegenbaur, 1856		
Family Carybdeidae Gegenbaur, 1856		
Carybdea marsupialis (Linneaus, 1758)	Gwadar Fish Harbour[13]	? Kazmi and Sultana 2008
Order Chirodropida Haeckel, 1880		
Family Chiropsalmidae Thiel, 1936		
Chiropsoides buitendijki (van der Horst, 1907) (= *Chiropsalmus buitendijki*)	Kaka village[6] (Sandspit)	Tahera and Kazmi 2006
Class Hydrozoa Owen, 1843		
Subclass Hydroidolina Marques & Collins, 2004		
Order Anthoathecata Cornelius, 1992		
Suborder Filifera Kühn, 1913		
Family Eudendriidae Agassiz, 1862		
Eudendrium capillare Alder, 1856	Jiwani[18]	Moazzam and Moazzam 2006
Family Hydractiniidae L. Aggasiz, 1862		
Hydractinia epidocleensis Leloup, 1931	Clifton[15], Pasni bay[67]	Moazzam and Moazzam 2006
Suborder Capitata Kühn, 1913		
Family Pennariidae McCrady, 1859		
Pennaria disticha (Goldfuss, 1820)	Sonmiani[19], Port Qasim[20]	Moazzam and Moazzam 2006
Family Porpitidae Goldfuss, 1818		
Porpita porpita (Linnaeus, 1758)	Manora [2], Clifton[15]	Gul and Gravili 2014
Velella velella (Linnaeus, 1758)	Manora[85]	Gul (2015)
Order Leptothecata Cornelius, 1992		
Suborder Conica Broch, 1910		
Family Aequoreidae Eschscholtz, 1829		
Aequorea pensilis (Haeckel, 1879)	Clifton[15], Damb (Sonmiani)[19]	Gul and Gravili 2013
Family Plumulariidae McCrady, 1859		
Macrorhynchia philippina Kirchenpauer, 1872	Cape Monze[9], Jiwani[18], Pedi Zur (Ormara)[21], Pasha Bundar	Moazzam and Moazzam 2006
Plumularia insignis Allman, 1883(= *Plumularia flabellum* Allman, 1883)	Keamari[11]	? Haque 1977
Pycnotheca mirabilis (Allman, 1883)	Buleji[10], Taq (Ormara)[21], Ras Zarrin (Pasni)[17]	Moazzam and Moazzam 2006
Family Sertulariidae Lamouroux, 1812		
Dynamena crisioides Lamouroux, 1824	Demi Zur [27](Gwadar), Ras Juddi (Pasni)[17], Ras Malan[22], Pasha Bundar	Moazzam and Moazzam 2006
Dynamena quadridentata (Ellis & Solander, 1786)	Manora[2], Hingol[23], Demi Zur[27](Gwadar)	Moazzam and Moazzam 2006
Sertularia distans (Lamouroux, 1816)	Buleji[10], Shadi Khor[25] (Pasni), Jabal Sur[24]	Moazzam and Moazzam 2006

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Table 1. *Continued.*

Species	Collection points	References
Suborder Proboscidoidea Broch, 1910		
Family Campanulariidae Johnston, 1836		
Clytia hummelincki (Leloup, 1935)	Jiwani[18], Gadani[1]	Moazzam and Moazzam 2006
Clytia noliformis (McCrady, 1859) sensu Calder, 1991	Sandspit[14], Demi Zur[27] (Gwadar), Jabal Sur[24]	Moazzam and Moazzam 2006
Orthopyxis cf. *everta* (Clark, 1876) (= *Orthopyxis* cf. *crenata* (Hartlaub, 1901)	Cape Monze[9], Buleji[10], Pedi Zur (Gwadar)[13], Ormara[21]	Moazzam and Moazzam 2006
Thyroscyphus fruticosus (Esper, 1793) (= *Campanularia juncea*)	Bhit Island[7]	Haque 1977
Order Siphonophorae Eschscholtz, 1829		
Suborder Calycophorae Leuckart, 1854		
Family Abylidae Agassiz, 1862		
Abyla haeckeli (Lens & van Riemsdijk, 1908)	28 – 66	Ali-Khan and Shehnaz 2001a
Abylopsis tetragona (Otto, 1823)	28 – 66	Ali-Khan and Shehnaz 2001a
Abylopsis eschscholtzii Huxley, 1859	28 – 66	Ali-Khan and Shehnaz 2001a
Bassia bassensis Quoy & Gaimard, 1827	28 – 66	Ali-Khan and Shehnaz 2001a
Ceratocymba leuckartii (Huxley, 1859)	28 – 66	Ali-Khan and Shehnaz 2001a
Enneagonum hyalinum Quoy & Gaimard, 1827	28 – 66	Ali-Khan and Shehnaz 2001a
Family Diphyidae Quoy & Gaimard, 1827		
Chelophyes appendiculata (Eschscholtz, 1829)	28 – 66	Ali-Khan and Shehnaz 2001b
Chelophyes contorta (Lens & van Riemsdijk, 1908)	28 – 66	Ali-Khan and Shehnaz 2001a
Dimophyes arctica (Chun, 1897)	28 – 66	Ali-Khan and Shehnaz 2001b
Diphyes bojani (Eschscholtz, 1829)	28 – 66	Ali-Khan and Shehnaz 2001a
Diphyes chamissonis Huxley, 1859	28 – 66	Ali-Khan and Shehnaz 2001a
Diphyes dispar Chamisso & Eysenhardt, 1821	28 – 66	Ali-Khan and Shehnaz 2001a
Eudoxides mitra (Huxley, 1859)	28 – 66	Ali-Khan and Shehnaz 2001a
Lensia campanella (Moser, 1917)	28 – 66	Ali-Khan and Shehnaz 2001a
Lensia cossack Totton, 1941	28 – 66	Ali-Khan and Shehnaz 2001a
Lensia hotspur Totton, 1941	28 – 66	Ali-Khan and Shehnaz 2001a
Lensia subtilis (Chun, 1886)	28 – 66	Ali-Khan and Shehnaz 2001b
Lensia subtiloides (Lens & van Riemsdijk, 1908)	28 – 66	Ali-Khan and Shehnaz 2001a
Sulculeolaria monoica (Chun, 1888)	28 – 66	Ali-Khan and Shehnaz 2001b
Sulculeolaria quadrivalvis Blainville, 1834	28 – 66	Ali-Khan and Shehnaz 2001a
Family Hippopodiidae Kölliker, 1853		
Hippopodius hippopus (Forskål, 1776)	28 – 66	Ali-Khan and Shehnaz 2001b
Family Prayidae Kölliker, 1853	28 – 66	
Amphicaryon acaule Chun, 1888	28 – 66	Ali-Khan and Shehnaz 2001b
Rosacea plicata Bigelow, 1911	28 – 66	Ali-Khan and Shehnaz 2001b
Suborder Cystonectae Haeckel, 1887		
Family Physaliidae Brandt, 1835		
Physalia physalis (Linnaeus, 1758) (= *Physalia utriculus*)	? Karachi	Haque 1977
Suborder Physonectae Haeckel, 1888		
Family Agalmatidae Brandt, 1835		
Agalma elegans (Sars, 1846)	28 – 66	Ali-Khan and Shehnaz 2001b
Agalma okenii Eschscholtz, 1825	28 – 66	Ali-Khan and Shehnaz 2001b
Cordagalma ordinata (Haeckel, 1888) (= *Cordagalma cordiforme*)	28 – 66	Ali-Khan and Shehnaz 2001b
Halistemma rubrum (Vogt, 1852)	28 – 66	Ali-Khan and Shehnaz 2001b
Nanomia bijuga (delle Chiaje, 1844)	28 – 66	Ali-Khan and Shehnaz 2001b
Family Forskaliidae Haeckel, 1888		
Forskalia sp.	28 – 66	Ali-Khan and Shehnaz 2001b
Class Scyphozoa Goette, 1887		
Subclass Discomedusae Haeckel, 1880		
Order Rhizostomeae Cuvier, 1800		
Family Catostylidae Claus, 1883		
Catostylus perezi Ranson, 1945 (= *Catostylus mosaicus*)	Korangi Creek[5], Manora[3]	Tahera and Kazmi 2006; Gul and Morandini 2013
Family Cepheidae Agassiz, 1862		
Cephea sp.	? Off Karachi	Stiasny 1937
Cephea coerulea Vanhöffen, 1902	Off Pakistani coast[75]	Gul et al. 2015
Netrostoma setouchianum (Kishinouye, 1902)	Charna Island[74]	Gul et al. 2015
Marivagia stellata Galil & Gershwin, 2010	Off Pakistani coast[84]	Gul et al. 2014
Family Rhizostomatidae Cuvier, 1800		
Rhizostoma pulmo (Macri, 1778)	Keti Bandar[26] (Thatta)	? Muhammed and Sultana 2008

Continued

Table 1. *Continued.*

Species	Collection points	References
Rhopilema hispidum (Vanhöffen, 1888)	Manora[2], Clifton[15], off Cape Monze[9], Charna Island[73]	Gul and Morandini 2015
Order Semaeostomeae L. Agassiz, 1862		
Family Pelagiidae Gegenbaur, 1856		
Pelagia cf. *noctiluca* (Forskål, 1775)	? Off Karachi, Manora[3], Clifton[16]	Stiasny 1937; Gul and Morandini 2013
Sanderia malayensis Goette, 1886	? Off Karachi	Stiasny 1937